

Caution Bulletin

This Bulletin is being provided to you for review, analysis, and internalization as applicable.

Title: Issues with MSA Powered Air-Purifying Respirators

Date: September 6, 2006

Identifier: 2006-RL-HNF-0039

Lessons Learned Summary: Use of MSATM Powered Air-Purifying Respirators (PAPRs) in combination with other Personal Protective Equipment (PPE) could put pressure on the electrical connection causing the connection to fail.

Discussion of Activities: The following occurred at the West Valley Demonstration Project on August 15, 2006.

Two teams of 3 operators each were setting up to work in the Crane Maintenance Room (CMR) in the Remote Handled Waste Facility. Three were on supplied air and three were using MSA (model number MM2K) PAPRs. One operator already inside the CMR was bending while putting on his harness when he heard a "pop" and lost air. He exited the CMR. The cable between the battery pack & fan was no longer connected to the battery pack. The operator stated he was suited up exactly as he had been the prior day when he performed many bending/moving operations. He believes that when he was bending this time to put on the harness his ice vest pushed against the connection in a cable bending motion.

It was stated in the critique that it was common knowledge that the battery pack cable connection could be easily broken by hand. This, in fact, was demonstrated in the critique by the responsible Facility Manager by holding the pack and bending the cable until it broke free of its connection. The battery pack connection is such that you push in the pins until engagement, then twist a ring which serves to lock in the cable. It is difficult to pull it apart, but easy to bend slightly and disconnect.

This was the second time in two weeks that an electrical cable disconnected or failed. All use of PAPRs was suspended pending completion of the investigation.

Analysis: It appears that the electrical cable connection is not robust enough when used in combination with other PPE, i.e., harness for working at height or ice vest. When bending, the PPE is coming into contact with the connection, resulting in a break or disconnect. MSA has been contacted to discuss this problem.

Recommendations/Actions:

1. Evaluate the use of PAPRs in combination with other PPE that could put pressure on the electrical connection.
2. Evaluate the type of work that is to be done (bending, squatting, turning, etc.) and where the PAPR is worn of the body to determine if the electrical connection will be stressed

¹ MSA is a trademark of the Mine Safety Appliances Company

Cost Savings/Avoidance: Not evaluated

Work Function: Personnel Protective Equipment

Hazards: Personal Injury/Exposure Airborne Materials

Keywords: Personal Protective Equipment, PPE, respirators, Powered Air-Purifying Respirators, PAPR

Originator: West Valley Nuclear Services Company (WVNSCO), Barry Lester (716) 942-4665.

Contact: Project Hanford Lessons Learned Coordinator; (509) 372-2166; e-mail: PHMC_Lessons_Learned@rl.gov

References: WVNSCO Critique #CM2006-017

Distribution: PHMC Programs and Projects, Respiratory Protection

¹ MSA is a trademark of the Mine Safety Appliances Company